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ABSTRACT

A longitudinal study was undertaken in 1981 to examine the educational and career achievements of 81 individuals who graduated from an Illinois high school in 1981 either as a valedictorian, salutatorian, or top honors student. These individuals completed questionnaires and were given in-depth interviews. One pattern emerged from the data collected: the females in the sample had substantially lower career participation plans than did their male counterparts. Females aspired to graduate study to the same extent as males, and college academic achievement and educational aspirations failed to distinguish male and female high school achievers; however, women in all majors raised concerns about the merging of family and careers even though none of them were engaged or married at the time. Thirty of the 45 women included in the study population did not plan continuous, full-time work, whereas only 3 of the 36 males interviewed did not plan to work full time and on a continuous basis. It was concluded that research classifying women into career salience levels according to their presence in male-dominated college majors must also take into account women's anticipated level of labor force participation. Plans were formulated to follow the effect of career discontinuity on actual professional achievement during the coming years of the longitudinal study. (MN)

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The Lives of Academic Achievers:

The Career Aspirations of Male and Female High School Valedictorians and Salutatorians*

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INTRODUCTION

Does stellar academic performance as a high school student translate into high achievement in postsecondary education? And, more importantly, what does scholastic achievement have to do with success outside academics? This study explores the antecedents and consequences of top academic performance in high school through a longitudinal study of high school valedictorians and salutatorians, and examines the circumstances under which that high achievement is continued or discontinued. The 81 former valedictorians, salutatorians and top students who comprise the study group are almost four years beyond high school graduation and most are currently preparing to complete undergraduate education. As the study concludes its fourth year, discussions about career, lifestyle and professional training have come to dominate the annual interviews. The exit from undergraduate education of the former high school valedictorians and salutatorians is a critical juncture in the lives of the study group, and their post-college plans appear to distinguish sub-groups within the study more sharply than did their college academic achievement.

This paper explores the first clear divergence in the paths of two groups of high school achievers--the substantially lower career participation plans of women, as opposed to men.

THE STUDY

The study began in 1981, following a pilot project, with the identification of all Illinois high schools which awarded the title of valedictorian and which publicly recognized this individual through a ceremonial speech at high school commencement. Schools were chosen, within the constraints of attendance by the study director at each graduation ceremony, in order to include a wide range

of high school settings. The final sample of 51 valedictorians, 20 salutatorians and 10 top honor students represents top grade earners at 33 public and private high schools. (The top honor students, added on the advice of informants in the high schools, have been included as full members of the study after confirming through statistical analyses that they do not differ in background ability or achievement from the valedictorians and salutatorians).

The goal of maximizing diversity of high school settings for valedictorian status is reflected in the schools' geographic dispersion throughout the state of Illinois, in the variety of community sizes, and in the presence of schools with largely minority student bodies. The study members graduated at the top of high school classes which ranged from 30 to 600 students.

Forty-five women and thirty-six men agreed to participate for a ten-year period in this longitudinal study of their academic, personal and career development (Only one valedictorian refused to enter the study; a second was killed in an automobile accident shortly after the first interview).

The major contact with the students is an annual in-depth interview. By this time, the fourth year of the study, the semi-structured interviews have yielded well over 5,000 typed pages of interview transcripts covering discussions of early scholastic and family experiences, as well as on-going personal, academic and career experiences and achievements. Questionnaire data and other quantitative measures supplement the interview data.

THE SAMPLE

Overview

Study group members are principally white (89%) and were born in the USA (85%). At the moment they are single (94%) but we expect that to change, of course. A few have a parent or parents who are immigrants (12%). Over

60% came from urban (34%) and suburban (29%) areas, while 24% came from towns and 13% from rural settings. Most (72%) attended public high schools, 21% attended Catholic or Lutheran schools, and seven percent were at the top of private nonreligiously affiliated high schools.

Institutions of Higher Education

All of the students chose to attend college following high school graduation. A large proportion (70%) will finish their undergraduate collegiate studies in four years; a few (5%) finished in three years; and a few (79%) will take five years. We are uncertain whether four (5%) of our study members will persist and are rather confident that two others will not.

Sixteen students who are high school valedictorians/salutatorians attend colleges and other institutions with a religious affiliation. For example, they are attending the Illinois Wesleyan College, Milligan (TN), Mennonite School of Nursing (Bloomington, IL), Notre Dame University, Augustana College, and Marquette University.

Not surprisingly, others are attending more prestigious institutions: e.g., the University of Chicago, Princeton, Harvard College, M.I.T., Stanford University, the University of Illinois, Oberlin, Swarthmore, Northwestern University, and Cornell University.

About half (47%) attended public four-year postsecondary institutions, a quarter (24%) attended private, nonsectarian institutions, and twenty-one percent attended religious institutions. Fifty-one members (68%) attended in-state (Illinois) institutions, twenty three (31%) went out of state, and one transferred to another state institution. The colleges they attended were selective, with average ACTs of 25.

Majors

Sixty percent of our group are completing their undergraduate work in one of three fields; business (24%), engineering (19%), and science (19%). The complete list can be seen in Table 1.

Parents

A majority of the students' fathers had college degrees (59%), as did twenty-nine percent of their mothers. A complete description of parental education levels can be found in Table 2.

The parents' occupations run the full range from unskilled unemployed laborers to butchers, professors, millionaire entrepreneurs, and physicians. The average SES of our group is 61, representing a middle level managerial level. This was determined by coding the occupations of whichever parent was employed at the higher occupational level, and awarding the values assigned to those occupations by the Duncan Socioeconomic Index of Occupations (in Reiss, 1961). In the Duncan scheme, ratings from 1 to 99 are assigned to occupations on the basis of the education, income, and prestige associated with each.

A dimension that we found to be important in the expressed and implied value schemes of a large majority of this group is a belief in God. Almost forty percent of our group (39%) have steadfastly given evidence of the centrality of God in their lives in their interviews, questionnaire responses, and personal behavior. An additional 27% see God as a solid factor or force in their lives. Still another 24% acknowledge God to be a factor, and finally, 11% do not consider God as a factor in their lives. How this apparently robust proportion of solid believers (65%) compares with the national average for young men and women with extraordinary academic talent is unknown. We shall examine the covariation of such belief(s) with other dimensions of the participants in our study.

Table 1

Academic Majors

Major	No. of majors	% of group	Women	Men
Business	19	24%	7	12
Science, pre-med	15	19%	9	6
Engineering	15	19%	7	8
Social Science, pre-law	10	12%	5	5
Physical Therapy	5	6%	5	0
Education	4	5%	3	1
Nursing	3	4%	3	0
English	3	4%	1	2
Art, music	2	2%	2	0
Agriculture	2	2%	2	0
Journalism	2	2%	2	0
Architecture	1	1%	0	1

Table 2

Parents' Education

	Father's Education %	Mother's Education %
Less than high school	5	7
High school	22	34
Some college, no degree	9	14
Two year or RN degree	5	14
Bachelor's degree	38	24
Master's degree	4	5
Terminal or professional degree	17	1
Current student	-	1

College Academic Achievement

The study group achieved very high academic distinction throughout their college years. Assuming an A to be a 5.0, our women averaged 4.7 and our men 4.54 (not a statistically significant difference). Their high achievement confirmed our expectations for a group of valedictorians and salutatorians with high intellectual ability. Thirteen were National Merit Scholars, with an additional six being finalists or semifinalists (totalling to 36% of those who took the PSAT). Their average ACT score was 28 (95th centile). The national norm for college-bound high school seniors is 20.

In addition to their high college grades our study group enjoyed several other prestigious academic awards. Four were Phi Beta Kappa, two others were cited as the outstanding scholar of their college and six received all A's. Indeed, 77% of our group received one or more institutional academic honor during their college years. Forty-five percent of them were on deans' lists and most were nominated for membership to a wide array of academic honorary societies. Twenty-six percent received scholarship support contingent upon high academic performance. The record is clear; nothing succeeds like success and there is no predictor of academic success better than a history of academic success.

Gender Differences

In the second year of the study, two patterns emerged from the interview data which led us to focus this paper on gender differences in career aspirations of the former valedictorians and salutatorians. First, the women in the study, but not the men, showed a sharp decline in their self-estimated report of their intelligence (in relation to their peers) between high school and their sophomore year in college.

Table 3

Self-Report of Intelligence Compared to Peers

	High School Senior		College Sophomore	
	Male %	Female %	Male %	Female %
Average	7	7	9	27
Slightly above average	23	28	19	27
Above average	47	44	50	42
Far above average	23	21	22	4

This lowering of women's estimates of their own intelligence occurred without diminution in college academic performance. As they leave college, the grade point averages of the women in the study are slightly higher than those of the men, and women have been as successful as men in gaining academic honors, merit-based scholarships, and undergraduate research and teaching assistantships.

A second phenomenon which occurred during the sophomore year of college was a shift away from medical school aspirations by several of the women in the group. Eight women and two men began undergraduate study as pre-med majors. Six women who expressed early interest in medical school changed their majors to other fields. One of the six remained in science, two moved to psychology, two to education, and one to nursing. Two of the changes, to nursing and secondary education, were clearly motivated by poor academic performance in required science courses; both women are among the only study members (six of them) who will graduate with a grade point average below a B. The remaining four women who changed from pre-med into other majors, however, were top college students, with undergraduate academic honors and one with all A's at the

midpoint of her senior year as a chemistry major. In their interviews these women discussed their concern with the demands of medical training and practice on future marriage and child-raising.

The decision by college sophomores to leave pre-medicine studies is more typical than unusual. However, the shift of 8 women and 1 man away from pre-med majors was a glaring exception to the stability of major choice among this study group.

Women in all majors, we discovered, raised concerns about the merging of family and careers, though none were married or engaged at the time. The following year, the third year of the study, we explored this theme by including the interview question: What would your life be like as a member of the opposite sex? Analysis of the responses to this question showed that women and men recounted instances in which their careers and personal lives would be similar or different as members of the other sex. Women consistently reported that life as a man would be easier because they would not have to worry about combining future family roles with career participation. Men cited family roles and discrimination in saying it would be more difficult to be a woman. Approximately a dozen women felt it would be more difficult to be a man because of pressures to succeed professionally and to support a family. Not one man, however, said it would be easier, in any way, to be a woman (Arnold & Denny, 1984).

These findings led us to collect questionnaire data to explore further the effects of anticipated family roles on the career aspirations of female and male former valedictorians and salutatorians. First, we confirmed statistically that women's career decisions were not based either on lower academic achievement or on less challenging majors than men's. Quantitative analysis

of college grade point average, honors and scholarships, college selectivity and curriculum difficulty showed that the study group as a whole succeeded magnificently in college academics, and that women's achievement was at least as outstanding as the performance of the men. High grade point averages were the rule for men and women, and were high regardless of differences in ability as measured by ACT scores. ACT test scores ranged from 18 to 33, with 6 students earning scores at or near the national mean for college-bound high school students. For our sample, however, correlations of cumulative GPA after three and one-half years of college and ACT scores were around zero. No former valedictorian, salutatorian or honor student earned a grade point average below a C; as noted, only six study members had less than a B average. The one woman and one man who left college without receiving any sort of degree dropped out for personal, rather than academic reasons, and the one valedictorian who ended her education with a community college associate's degree earned all A's in her academic program.

To repeat, as we had gathered from interview data, the academic achievement of women in undergraduate study was at least as high as that of the men; women appear to have succeeded in as challenging curricula in as challenging institutions. One apparent exception to this trend is the finding of a negative relationship between average ACT score of the college attended and women's college grade point average ($r = -.43$, $p < .01$). Men's grade point averages were unaffected by the selectivity of the college they attended.

The career aspirations of the male and female valedictorians, then, must be examined in the light of top academic performance as college students. On the basis of the interview indications that women planned to modify career aspirations in light of anticipated family roles, we anticipated questionnaire

data which would show women choosing professional fields and participation levels differently from men. In particular, we expected that women who expressed concern about merging family and career would be disproportionately represented in female-dominated professions such as teaching or nursing. And we anticipated discontinuous labor force participation by women in traditional female fields to a greater extent than by either men or women in male-dominated areas. We collected information, therefore, on women's and men's expected occupation and professional level, on their planned timing for labor force participation, on their intentions for full or part-time work, and on their expectations for graduate study and professional training.

Educational aspirations for postgraduate study are extraordinarily high, with 75% of the sample planning graduate school. Only four students said they would definitely not attend graduate school, including the two women whom we do not expect to complete their undergraduate studies. Thirty students plan to attend graduate school directly after undergraduate school, the remainder after a period of work. Women aspire to graduate study to the same extent as men. Interestingly, women who had large decreases in their self-estimation of their intelligence (in relation to their peers) were somewhat less likely to have firm plans for graduate school ($r = -.26$, $p < .05$). The higher a man's grade point average in college, the more likely he was to plan graduate study ($r = .39$, $p < .02$). Women's college GPA, however, was moderately negatively associated with graduate school expectations ($r = -.26$, $p < .05$), a finding which is possibly related to the lower GPA of women, but not men, in more selective institutions. Finally, ACT scores were positively related to graduate school plans for women ($r = .28$, $p < .05$), but unrelated to educational aspirations

for men. Table 4 presents expectations for graduate school attendance for the study group.

Table 4

Graduate School Expectations

Plans for Graduate Study	No. in group	% of group
Definitely will	34	5
Probably will	25	14
Probably won't	11	33
Definitely won't	4	44
Don't know	3	4
	77*	100%

* Although the Study has 81 participants, at present we have complete data sets on 77.

College academic achievement and educational aspirations failed to distinguish men and women high school achievers. Nor were women and men significantly different in their assignment of the relative importance of marriage versus career. Both men and women valued most highly the chance to use their intellect and best talents in a career. Table 5 shows the career aspirations of men and women study members.

The gender difference which confirmed our interview data was the finding that 30 of the 45 women questionnaire respondents do not plan continuous, full-time work. Only three of the 36 male study members do not plan continuous full-time work. Of these three, two are unsure about full-time or part-time practice and one plans to take turns with his partner in career involvement. The 30 women, on the other hand, who plan lessened career involvement, plan to interrupt careers or to work part-time for child raising. Table 6 shows th

Table 5

Career Aspirations

	Men Frequency	Women Frequency
Un[illegible]	5	6
Manager/Administrator	5	2
Professor	5	3
Engineer	4	2
Physician	1	4
Lawyer	4	2
Own Company	2	1
Teacher K-12	0	4
Accountant	3	3
Nurse	0	2
Physical Therapist	0	3
Child-raising/Homemaker	0	3
Counselor/Housewife	0	1
Minister	0	1
Artist/Musician	0	2
Radio/TV	2	1
Researcher	0	3
Clerical Supervisor	0	1
Computer Manager	1	1

career participation plans of the sample. No study members reported that they planned not to work.

Table 6

Career Participation Plans

	Women	Men
	freq.(%)	freq.(%)
Continuous and Full-time	15 (.33)	29 (.91)
Continuous	19 (.42)	31 (.97)
Full-time	28 (.62)	30 (.94)

The literature on women's career development and our experience with women leaving pre-medical fields led us to expect a close relationship between a woman's presence in a male or female-dominated profession and her plans for labor force participation. We anticipated, for instance, that women would choose female-dominated professions such as teaching or nursing partly as a result of how combinable these occupations were with family involvement. In fact, however, the degree to which women studied in male-dominated majors was unrelated to their plans to practice continuously or full-time, (with correlations near zero). Half of the women in the group were found in the male-dominated fields of engineering, science and mathematics, agriculture and business. Of the 24 women in these fields, however, only 7 planned continuous, full-time work. Table 7 shows the degree to which the study members are enrolled in majors which are male-dominated, female-dominated or have equal gender representation. Table 8

presents traditionality of college major by career participation plans for men and women. (Similar analyses which defined gender makeup of fields by college student enrollment proportions, rather than by percent of traditional practitioners yielded more majors in the equal gender category. However, this alternate method of defining gender makeup of college major showed the same proportions of continuous and discontinuous participation in all categories).

Table 7

Traditionality of College Major Field

	Men	Women
	freq.(%)	freq.(%)
Male-dominated	24 (.75)	24 (.53)
Equal gender representation	5 (.16)	9 (.20)
Female-dominated	3 (.09)	12 (.27)

NOTE: Male-dominated fields are: Engineering, agriculture, science mathematics, business and architecture
Equal gender representation fields are: Pre-law, fine arts, social sciences
Female-dominated fields are: Nursing, education, physical therapy, English

The degree to which women were found in nontraditional fields was unrelated to college GPA, to ACT scores, to parents' education or to family socioeconomic status. Traditionality of major field for women was also unrelated to graduate school expectations.

Women in male-dominated professions were somewhat more interested than other women were in job prestige, high income, and jobs that allowed them to

use their intellect (r's circa .30, $p < .05$). Women in female-dominated professions were more interested than other women in working with people, in jobs which allow mixing family and career, in flexible employment hours, in suiting parents' wishes and in helping others (r's circa .30, $p < .05$). Women in female-dominated professions were also somewhat more religious than other women ($r = .24$, $p < .05$).

Table 8

Traditionality of College Major

by Participation Plans

	Full-time Continuous		Not Full-time Continuous	
	Men	Women	Men	Women
	freq.	freq.	freq.	freq.
Male-dominated	22	7	2	17
Equal Male-Female	4	4	1	5
Female-dominated	3	4	0	8
TOTAL	29	15	3	30

Top women academic achievers lowered their career aspirations, therefore, in terms of labor force participation plans, but <u>not</u> by shifting into female-dominated professions. In fact, analysis of the socioeconomic status of the study group's own aspired professions showed no gender difference. The socioeconomic status of women's expected professions was significantly related to plans for continuous full-time employment, however ($r = .33$, $p < .01$).

Women's reports of the work they expected to be doing in their 30's differed from men's statements in several ways. First, seven women listed child-raising or homemaking in addition to career fields. Two women said they would be working in a career or as a homemaker, and six specified part-time employment. No men mentioned any consideration of family expectations or work schedule in listing their current career aspirations, although the only parent (male) in the study listed his career aspiration as: "work and support my family until our security is established." One of the most outstanding students in the study group reported her career ambition as "either working as a physician or mother and homemaker."

The listing of two very different career possibilities was more characteristic of the women than the men in the group. Women's professional expectations were also more vague than those of the majority of men study members. Men tended to report an occupation, level, and professional setting, whereas women did not. For example, a female accounting major listed her future career field as "accountant" while a male in the same field wrote: "Comptroller, senior executive in private industry." A woman listed her career ambition as: "trying to run my own company at whatever looks promising," a man planned "my own marketing consulting firm."

CONCLUSION

The dramatic difference between men and women who were high school valedictorians is not what they achieve in college. They both continue to get good grades, to earn conspicuous honors, and to receive scholarships based on outstanding academic performance. Women choose the difficult curricula and the prestigeful careers as often as do their male counterparts. The important difference is that women lower their estimation of their intelligence and

lower their plans for career participation. The finding that, for this group, academic performance is unrelated to women's career participation plans or to their choice of male-dominated professions suggests that highly able women follow the patterns of development exhibited by college women in general (Blocher & Rapoza, 1981). The independence of educational aspirations from career participation plans for our women is perhaps more surprising. For us, the most interesting finding is the discovery that traditionality of major field is unrelated to career involvement expectations of academically talented women. This finding suggests, for instance, that research which classifies women into career salience levels according to their presence in male-dominated college majors must also take into account women's anticipated level of labor force participation.

The effect of career discontinuity on actual professional achievement will be followed during the coming years, as will the correspondance between stated plans and actual careers.

The next step in our research is the administration of a sex-role instrument, the Personality Attributes Questionnaire (Spence, Helmrich & Stapp, 1974), in order to determine the extent to which sex-role orientation relates to career participation plans. The discovery that religiosity is negatively correlated with women's presence in nontraditional majors is one indication that patterns of career plans include a values component. We also plan to look closely at the occupations and labor force participation sequences of the mothers of women study group members.

We now know that top academic achievement in high school relates closely to outstanding college scholastic performance. We know also that career

participation plans for women of high academic achievement are far below their male counterparts four years after their high school graduation. The coming years will establish how closely academic success relates to career and personal achievement for men and women who were the "best" students in their high schools.

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